

## Reference 2

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### (54) EDIBLE INK

#### (57)Abstract:

PURPOSE: The titled ink that is made by emulsifying water, edible pigments and food oil by use of an emulsifier, thus being applicable to various kinds of food and printable through various printing processes, especially by screen printing.

CONSTITUTION: The objective ink is prepared by emulsifying a mixture of water, edible pigments, food oil, preferably vegetable oil or hydrogenated oil, a thickener such as starch of alpha-form, and a binder such as gelatin by use of an edible emulsifier such as casein or gum arabic in an amount of 0.8W8.0wt% based on that of the ink.

USE: Printing on chewing gum, chocolate, roasted rice cake or boiled fish paste.

#### Sole Claim:

An edible emulsion ink which is made by emulsifying water, edible dye, edible fat and oil, and optionally other edible additives with an edible emulsifying agent.

(page 2, left and upper column, line 10 – right and lower column, line 18)

Although the ink according to the present invention was originally developed as an

ink for screen printing, its use should not be limited to the screen printing since the thickness and softness of the ink is variable according to the composition of the emulsion.

Any known edible dye may be optionally used in the invention.

Any edible fat and oil of vegetable or animal origin may be used, vegetable or hydrogenated one being preferred in view of odor after printing on foods.

Any known edible emulsifying agent may be used such as casein, glycerin fatty acid esters, sugar fatty acid esters, propylene glycol fatty acid ester, Arabic gum, sodium carboxymethylcellulose, and sodium alginate.

The additives include a thickening agent such as starchy paste, sugar alcohols, sugars; a binder such as gelatin, albumin, polysaccharides; edible polymers such as natural gums, propyleneglycol alginate, sodium starchglycolate, polyacrylate; aroma chemicals; an antioxidant; and edible solvent such as alcohol, glycerin and propylenalcohol.

(page 5, left and upper column, line4 - 19)

(Example 5)

Water	89 g
Arabic gum	1 g
Alcohol	3.3 g
Soybean lecithin	0.7 g
Edible red dye No.3	0.5 g
Salad oil	5.5 g
(Total)	100 g

Arabic gum, alcohol, soybean lecithin and edible red dye No.3 were dissolved into water. Salad oil was poured into the resulting solution while being stirred with a homogenizer to give oil-in-water type emulsion ink. Viscosity was about 200 centipoise at 25 °C. A clear printing was obtained on process cheese by means of flexographic printing using the resulting edible ink.